REMARKS/ARGUMENTS

Further consideration of this application is respectfully requested.

The Examiner is thanked for the advisory action of June 29, 2010, providing helpful feedback as to reasons the Examiner has so far found applicants' response non-persuasive *vis-à-vis* McMahon. In this regard, all outstanding rejections alleging anticipation by McMahon and/or "obviousness" based on McMahon taken in view of additional prior art references are respectfully traversed – for reasons already set forth in applicants' submission of June 21, 2010.

The Examiner's responsive comments in the advisory action of June 29 are specifically and directly addressed below – together with additional arguments. Further claim amendments to the independent claims have also been made above in an effort to even further distinguish from McMahon.

The Examiner is also respectfully requested to again review the arguments *vis-à-vis* McMahon submitted June 21, 2010, because they are all believed to be substantively correct – except for incorrectly identifying the 6^{th} bit in Mahon's example as the most significant bit (MSB). Obviously, the MSB is the 7^{th} bit to the left of the understood binary point.

A. Examiner's Response: "In response to the argument that the lookup table of claim 1 does not index levels containing free segments [...], the limitation that it is not used to identify free segments is not present in any of the claims."

Claim 1 requires "determining from the lookup table entry associated with the most significant bit a lowest of said levels containing a segment of a size equal to or larger than the requested memory block".

Claim 1 does not specify whether or not the segment of a size equal to or larger than the requested memory block has to be free. Thus, it can be either.

Consider the example provided in applicants' response of June 21, 2010. A 100 byte memory request corresponds to the binary data set 1100100. Accordingly, the most significant set bit is bit no. 7, and the appropriate level is that indicated by the content of bit no. 7 in the lookup table. In the example of Fig. 4, this is level 0. Thus, level 0 is the "lowest of said levels containing a segment of a size equal to or larger than the requested memory block", as per claim 1. It is important to note that level 0 is the result of this operation regardless of whether or not level 0 actually contains any free segments.

This is in clear contrast to McMahon. In McMahon, the master bit map index is used to identify the appropriate group (level) that "contains some non-empty free lists" (i.e., at least one memory block is available) (see 7:59-62).

Thus, the approaches are different, and the results also differ (unless the lowest level happens to contain a free segment). In other words, it is not an example where a specific feature takes away the novelty of a more generic feature.

B. Examiner's Response: "In response to the argument that the bitmaps are distinct from the lookup table and are separately claimed [...], the master bit index serves the claimed purposes and features both elements."

This is incorrect because, as described above, the lookup table is used to determine a lowest of said levels containing a segment of a size equal to or larger than the requested memory block, regardless of whether or not it is free. Thus, clearly, the claimed purpose of the lookup table is a different one.

C. Examiner's Response: "In response to the argument regarding determining the appropriate level from the lookup entry [...], McMahon teaches determining a most significant bit of the binary data set, and determining from the lookup table entry associated with the most significant set bit. Table 1 shows the various memory block sizes. In order to decide whether to use the first or second free list for a 32 byte request, the most significant bit would have to be used."

McMahon contains no explicit or implicit disclosure of "determining from the lookup table entry associated with the most significant set bit" as asserted by the

Examiner. The Examiner is respectfully requested to identify this alleged disclosure in McMahon or withdraw the objection.

Regarding Table 1 in McMahon, the Examiner has stated that in order to decide whether to use the first or second free list for a 32 byte request, the most significant bit would have to be used. While it is doubtful that it "would have to be used", it is correct that in this particular example it can be used to make that decision. However, this no longer holds true for any request that exceeds 32 bytes. For example, if the request is 48 bytes (rounded up from, say, 33 bytes), the most significant bit is still the same as that of a 32 byte request (32 bytes = 100000; 48 bytes = 110000). However, for a 48 byte request, "free list 3" instead of "free list 2" is required. Thus, clearly, the appropriate free list cannot be determined on the basis of the most significant bit. Instead, in this example, the second most significant bit (or other information) has to be taken into account.

D. Additional differences not discussed by Examiner.

According to claim 1, each bit of the binary data set that indicates the size of a requested memory segment is associated with an entry of the lookup table.

As explained in applicants' response of June 21, 2010, McMahon does not disclose this feature. In particular, even if the master bit index of McMahon is considered *arguendo* to correspond to the claimed lookup table, there is no disclosure in

McMahon of any association between the entries of the master bit index and the bits of a binary data set indicating the size of a requested memory segment.

It is noted that the Examiner has not commented on this difference even though it was emphasized several times in the last response.

E. Conclusions as to rejected claims.

As explained above, claim 1 differs from McMahon in at least the following features:

- each bit of the binary data set that indicates the size of a requested memory segment is associated with an entry of the lookup table
- determining from the lookup table a lowest level containing a segment of a size equal to or larger than the requested memory block (regardless of whether or not the segment is free)
- making that determination on the basis of the most significant bit of the binary data set that indicates the size of a requested memory segment.

Independent claim 17 also differs from McMahon in at least the following features:

- each entry of the lookup table is associated with a bit of a binary data set that indicates size of a requested memory block

- each entry of the lookup table indicates one of the levels
- an allocation request is processed by determining a level containing suitably sized segments using the lookup table.

F. New independent claims 49 and 50.

The new independent claims 49 and 50 are related, respectively, to claims 1 and 17, but are even further distinguished from McMahon.

Additional features found in claims 49 and 50 include:

(c) providing a bitmap indicative of a state of memory segments (free, allocated);

(d) providing a plurality of predetermined masks, wherein each mask is associated with one of said levels;

(e) said CPU using said lookup table entry associated with the most significant set bit to index a mask associated with said lowest of said levels containing a segment of a size equal to or larger than the requested memory block;

(f) said CPU logically combining said indexed mask with said binary data set to compute an index to said bitmap; and

(g) said CPU determining, from said bitmap, the availability of a free segment of a size equal to or larger than the requested memory block using said index to said bitmap.

McMahon does not disclose at least features (d) to (f).

Regarding feature (d), McMahon discloses masking off lower bit flags corresponding to free lists in the group 1 bit map index 360. However, there is no disclosure or suggestion of providing a plurality of predetermined masks wherein each mask is associated with one of said levels.

Regarding feature (e), if the master bit map index of McMahon is considered *arguendo* to correspond to the lookup table of the claimed invention (as per the Examiner's assertion), it is not used to index a certain mask out of a plurality of pre-determined masks. More particularly, there is no disclosure or suggestion of using the lookup table (master bit map index) entry associated with the most significant set bit to index a mask associated with the lowest of the levels containing a segment of a size equal to or larger than the requested memory block.

Regarding feature (f), there is no disclosure or suggestion in McMahon of logically combining a particular (i.e., indexed) mask with a binary data set indicative of the requested memory block size.

Accordingly, this entire application is believed to be in allowable condition, and a formal notice to that effect is earnestly solicited.

Respectfully submitted,

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